



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,139	08/18/2005	Eberhard Harms	FRG-16153	2263
40854	7590	08/27/2008		
RANKIN, HILL & CLARK LLP 38210 Glenn Avenue WILLOUGHBY, OH 44094-7808			EXAMINER ANDERSON, DENISE R	
			ART UNIT	PAPER NUMBER
			1797	
			MAIL DATE	DELIVERY MODE
			08/27/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/539,139	Applicant(s) HARMS ET AL.	
	Examiner Denise R. Anderson	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4 and 7-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4 and 7-15 is/are rejected.
- 7) ☒ Claim(s) 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>06 June 2008</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Objections

2. Claims 1 and 10 were amended and the previous objections are withdrawn.
3. Claim 12 is objected to because of the following informalities: The term “in preference” raises the possibility that the claim is indefinite and indistinct but the claim goes on to further limit at least one hollow body recited in claim 1 to a pipe-shape with holes or porous material to allow gas to escape. The way the claim is structured, there is no preferred embodiment. As such, the examiner will assume the term “in preference” is deleted. Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. Claims 1, 3-4, 7-12 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grigo et al. (Canadian Patent No. CA 2421115A1, Jan. 11, 2001 – the English version of EP1149619A1 that is in German), in view of Masuda et al. (JP61274799, Dec. 4, 1986 – The EPO abstract in English, the JPO abstract in English, and the patent) that discloses stationary gas installations to clean rotary filters, and further in view of Breton et al. (US Patent No. 3,997,447, Dec. 14, 1976) that teaches gas installations in the hollow shaft of a rotary filter.

5. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Grigo et al. (Canadian Patent No. CA 2421115A1, Jan. 11, 2001 – the English version of EP1149619A1 that is in German), in view of Masuda et al. (JP61274799, Dec. 4, 1986 – The EPO abstract in English, the JPO abstract in English, and the patent) that discloses stationary gas installations to clean rotary filters.

6. Grigo et al. discloses the same machine except that the paddle, used to agitate the waste water and clean the filter elements, is replaced with a gas installation to do the same task. Masuda et al. teaches, "To efficiently treat waste water, by mounting a treatment tank and a filter means and forming the filter means by parallelly arranging a plurality of filter plates each having a hole provided to the central part thereof to a hollow rotary shaft while providing a gas emitting aeration means between the filter. . . . The microbes or solid substances adhered to and accumulated on the surface of the semipermeable membrane 30 are washed away when the surface of the membrane passes the position of a gas emitting pipe 40 every one rotation of a filter means 16. By this method, waste water treatment and filtering treatment can be effectively preformed in the same tank." Masuda et al., EPO abstract and Figures 1 and 2.

7. Grigo et al. discloses the same machine except that the paddle, used to agitate the waste water and clean the filter elements, is replaced with a gas installation to do the same task. Breton et al. discloses "fluid processing devices primarily intended for filtration but which devices may also be used for dispensing or sparging liquids and gases into a body of fluid medium." Breton et al., Abstract, lines 1-4. Breton et al. further teaches, "Also disclosed are porous elements of laminated structure in propeller

Art Unit: 1797

or disc configurations which may be coated with microporous active surfaces to permit filtration of extremely small sized particles from a fluid medium or dispensing of extremely small sized bubbles or gas or droplets of liquid into a body of fluid medium."

Breton et al., Abstract, lines 12-17. Breton et al. also discloses that because of the simple equipment used to make the extremely small sized bubbles, it is possible to sparge "very large quantities of liquid such as those processed in municipal waste treatment plants." Breton et al., Column 13, lines 30-32.

8. Independent claims 1, 13, and 15 appear below in italics, with the prior art and examiner's comments in normal font. Analyses follow for the dependent claims 3-4, 7-12, and 14.

Claim 1. (Currently Amended) A filter device (1) (Grigo et al., Abstract, lines 1-3; Figure 1, filter device 1) for the separation of undissolved solid substances from liquids, in particular in the fields of waste water purification and water treatment, with several filter elements (6) (Grigo et al., Abstract, lines 4-8; Figure 1, filter elements 4) , for the introduction into a container (2) (Grigo et al., Abstract lines 13-18; Page 6, lines 16-17; Figure 1, container 2 or vessel 2) containing the unpurified liquid, wherein through the individual filter elements (6) a filtrate is capable of being drained away (Grigo et al., Page 6, lines 21-22 and Page 6a, lines 13-15), the filter elements are arranged so as to be capable of rotating around a horizontal axis (Grigo et al., Page 6 lines 14-16; Figure 1), and the filter elements (6) are designed and arranged in such a manner, that they form a

Art Unit: 1797

hollow space (4) (Grigo et al., Abstract, lines 13-18; Figure 1, hollow area 14) in the center, and wherein the filter device (1) comprises a gassing installation (8) (Masuda et al., Figures 1 and 2, reference part 38 which has a gas emitting pipe 40 and a pipe 42 stationarily arranged), which is stationarily arranged in the hollow space (4) and which for the formation of a mixture of gas and liquid is capable of being impinged with compressed gas (Masuda et al., Figures 1 and 2; EPO abstract, lines 19-24, that states, "The microbes or solid substances adhered to and accumulated on the surface of the semipermeable membrane 30 are washed away when the surface of the membrane passes the position of a gas emitting pipe 40 every one rotation of a filter means 16.") and which is arranged in such a manner, that in the liquid a flow of a mixture of gas and liquid is capable of being produced at the filter elements (6), which renders an adhesion of solid substances to the filter elements (6) more difficult, and the filter elements (6) are arranged to be rotatable around the gassing installation (8) (Masuda et al., Figures 1 and 2 where filter means 16, with semipermeable membranes 30, rotate past gas emitting pipes 40; EPO abstract, lines 19-24), wherein the gassing installation (8) comprises either at least one elongated hollow body (10) (Masuda et al., Figures 1 and 2, reference part 42) arranged parallel to a hollow shaft (9) (Masuda et al., Figures 1 and 2, reference part 18), which is closed at the ends on both sides, or comprises at ~~lest~~least one elongated hollow body (10) (Breton et al., Figure 6, reference part 42 that is arranged horizontally and orthogonally to hollow shaft 35) arranged horizontally

Art Unit: 1797

as well as orthogonally to a hollow shaft (9), and the at least one hollow body (10) (Breton et al., Figure 6, reference part 42) is connected with a chamber (12) (Breton et al., Figure 6, center of hollow shaft 35) of the hollow shaft (9) through connecting pieces (11) (Breton et al., Figure 6, reference part 37), wherein the chamber (12) is connected with a compressed gas generator (14) (Breton et al., Column 14, lines 58-63; Figures 1 through 6 and Column 14, line 68 through Column 15, line 4 where "air was forced, at a rate of 5 liters per minute, in though . . . hub 35 and out though . . . distribution layer 40 and surface layer 41" – indicating the presence of a compressed gas generator).

Grigo et al. discloses the claimed invention except that the paddle used to agitate the waste water and clean the filter elements is replaced with a gas installation to do the same task. Grigo et al., Figure 1. Matsuda et al. teaches that it is known in the waste water treatment art to construct a rotary filter with disk filters rotating on a horizontal shaft and to provide a "a gas emitting aeration means between the filters" such that, "The microbes or solid substances adhered to and accumulated on the surface of the semipermeable membrane 30 are washed away when the surface of the membrane passes the position of a gas emitting pipe 40 every one rotation of a filter means 16. By this method, waste water treatment and filtering treatment can be effectively performed in the same tank." Matsuda et al., Figures 1 and 2; EPO abstract, lines 6-8 and 19-27. It would have been obvious to one having ordinary skill in the art at the time the invention was made, in the Grigo et al. device, to have replaced the Grigo et al.

Art Unit: 1797

paddle with the gas installation as taught by Matsuda et al. since Matsuda et al. states in the EPO abstract, lines 19-27, that such a modification would allow the filter elements to be washed by the "gas emitting aeration means" as the elements rotated past and, also, that "waste water treatment and filtering treatment [could] be effectively performed in the same tank."

Grigo et al. discloses the claimed invention except that the paddle used to agitate the waste water and clean the filter elements is replaced with a gas installation to do the same task. In Figure 6 and in Example 5 (Column 14, line 58 to Column 15, line 13), Breton et al. teaches that it is known to construct a gas installation (Figure 6 connected to the air compressor of Example 5) where the aeration gas enters the liquid medium through hollow bodies (reference part 42) that are connected (via reference part 37) to a hollow shaft (hollow shaft 35) which is supplied with gas from a gas compressor (in Example 5, the gas is air). It would have been obvious to one having ordinary skill in the art at the time the invention was made, in the Grigo et al. device, to have replaced the Grigo et al. paddle with the gas installation as taught by Breton et al. since Breton et al. states in Example 5, Column 14, lines 58-59 and Column 15, lines 5-6, that such a modification demonstrates "superior sparging ability," i.e., "the water was completely full of tiny air bubbles." Breton et al. further states that the simple mechanical equipment employed to make the tiny bubbles can be used to sparge "very large quantities of liquids such as those processed in municipal waste treatment plants." Breton et al., Column 13, lines 30-33.

In summary, Grigo et al., in view of Masuda et al., in view of Breton et al., discloses or suggests all claim 1 limitations.

Claim 13. (Previously Presented) A filter device for the separation of undissolved solid substances from liquids, in particular in the fields of waste water purification and water treatment, with several filter elements, for the introduction into a container containing the unpurified liquid, wherein through the individual filter elements a filtrate is capable of being drained away, the filter elements are arranged so as to be capable of rotating around a horizontal axis, and the filter elements are designed and arranged in such a manner, that they form a hollow space in the center, and wherein the filter device comprises a gassing installation, which is stationarily arranged in the hollow space and which for the formation of a mixture of gas and liquid is capable of being impinged with compressed gas and which is arranged in such a manner, that in the liquid a flow of a mixture of gas and liquid is capable of being produced at the filter elements, such that this flow renders an adhesion of solid substances to the filter elements more difficult, and in that the filter elements are arranged to be rotatable around the gassing installation.

Claim 13 is claim 1 without the details of the gassing installation recited by applicant and taught by Breton et al.. Therefore, the claim 13 patentability analysis is the same as claim 1 except for use of the Breton et al. reference and that patentability analysis will not be repeated here.

In summary, Grigo et al., in view of Masuda et al., discloses or suggests all claim 13 limitations.

Claim 15. (Previously Presented) A filter device for the separation of undissolved solid substances from liquids, in particular in the fields of waste water purification and water treatment, with several filter elements, for the introduction into a container containing the unpurified liquid, wherein through the individual filter elements a filtrate is capable of being drained away, the filter elements are arranged so as to be capable of rotating around a horizontal axis, and the filter elements are designed and arranged in such a manner, that they form a hollow space in the center, and wherein the filter device comprises a gassing installation, which is stationarily arranged in the hollow space and which for the formation of a mixture of gas and liquid is capable of being impinged with compressed gas and which is arranged in such a manner, that in the liquid a flow of a mixture of gas and liquid is capable of being produced at the filter elements, which renders an adhesion of solid substances to the filter elements more difficult, and the filter elements are arranged to be rotatable around the gassing installation, wherein the gassing installation comprises a hollow shaft with gas outlet openings and is connected to a compressed gas generator, the filter elements being arranged to be rotatable around the hollow shaft (Grigo et al., Figure 1, filter elements 4 are arranged to be rotatable around shaft 10 connected to pump vane wheel 15 in cavity 14).

Claim 15 is claim 1 with (1) the filter elements arranged to be rotated around the hollow shaft and (2) the structure of the gas installation being recited as a hollow shaft with gas outlet openings. The relevant claim 1 patentability analysis will not be repeated here. Grigo et al. discloses the first limitation as shown in claim 15 above. Breton et al. discloses the second limitation, as discussed in the claim 1 patentability analysis. Breton et al., Figures 1 and 6 and Column 14, line 58 through Column 15, line 4. It would have been obvious to one having ordinary skill in the art at the time the invention was made, in the Grigo et al. device, to have replaced the Grigo et al. paddle with the gas installation as taught by Breton et al. since Breton et al. states in Example 5, Column 14, lines 58-59 and Column 15, lines 5-6, that such a modification demonstrates "superior sparging ability," i.e., "the water was completely full of tiny air bubbles." Breton et al. further states that the simple mechanical equipment employed to make the tiny bubbles can be used to sparge "very large quantities of liquids such as those processed in municipal waste treatment plants." Breton et al., Column 13, lines 30-33.

In summary, Grigo et al., in view of Masuda et al., in view of Breton et al., discloses or suggests all claim 15 limitations.

Analysis of dependant claims 3-4, 7-12, and 14.

Claim 3. (Previously Presented) The filter device according to claim 1, wherein the hollow space (4) is connected with the container (2) through apertures (5).

Claim 4. (Previously Presented) The filter device according to claim 1, wherein the hollow space (4) is closed relative to the container (2).

Grigo et al., in view of Masuda et al., in view of Breton et al., disclose or suggest all claim 1 limitations. Grigo et al. further teaches both connecting the hollow space with the container through apertures (Figure 3 and Page 7, lines 8-13) and not connecting the hollow space with the container through apertures (Figure 4 and Page 7, lines 15-18).

In summary, Grigo et al., in view of Masuda et al., in view of Breton et al., discloses or suggests all limitations in recited in claims 3 and 4.

Claim 7. (Previously Presented) The filter device according to claim 1, wherein the filter elements (6) are rotatably supported by bearings (21, 22) on the hollow shaft (9) connected with the gassing installation (8).

Claim 7 recites claim 15 limitations plus that the filter elements are supported by bearings. Grigo et al., in view of Masuda et al., in view of Breton et al., disclose or suggest all claim 15 limitations. Grigo et al. teaches filter elements 4 that are rotatably supported by bearings 11 and 13 in Figures 1-4.

In summary, Grigo et al., in view of Masuda et al., in view of Breton et al., discloses or suggests all claim 7 limitations.

Claim 8. (Previously Presented) The filter device according to claim 1, wherein the hollow shaft (9) comprises a second chamber (26), which is connected with a vacuum pump (33) for draining away the filtrate.

Grigo et al., in view of Masuda et al., in view of Breton et al., disclose or suggest all claim 1 limitations. Grigo et al. further discloses a second chamber in the hollow shaft connected to a vacuum pump for draining away the filtrate. Grigo et al., Figures 1-4, connecting duct 19; Page 6a, line 35 through Page 7 line 1.

In summary, Grigo et al., in view of Masuda et al., in view of Breton et al., discloses or suggests all claim 8 limitations.

Claim 9. (Previously Presented) The filter device according to claim 8, wherein the chamber (26) for the draining away of the filtrate is provided with channels (27), which extend radially to the chamber (26) through the hollow shaft (9) and through a sliding ring (28) arranged as rotatable on the hollow shaft (9), which is connected with piping conduits (29), which are connected with the filter elements (6).

Grigo et al., in view of Masuda et al., in view of Breton et al., disclose or suggest all claim 1 limitations. Grigo et al. further discloses all claim 9 limitations except that the piping conduits (Figure 1, reference part 18) come together before entering the sliding ring (Figure 1, reference part 20) instead of coming together at the sliding ring as recited by applicant. It would have been obvious to

Art Unit: 1797

one having ordinary skill in the art at the time the invention was made to have located the piping conduits at the sliding ring, as opposed to before the sliding ring, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

In summary, Grigo et al., in view of Masuda et al., in view of Breton et al., discloses or suggests all claim 9 limitations.

Claim 10. (Currently Amended) The filter device according to claim 1, wherein the at least one hollow body (10) of the gassing installation (8), for the purpose of preventing ~~sediments~~sedimentation from the filter liquid, is provided with open socket pieces (34) directed downwards.

Claim 12. (Previously Presented) The filter device according to claim 1, wherein the at least one hollow body (10), in preference, is designed as pipe-shaped and in order to allow the compressed gas to escape is comprised of a porous material or else is provided with holes (15).

Grigo et al., in view of Masuda et al., in view of Breton et al., discloses or suggests all claim 1 limitations. Claims 10 and 12 recite a further limitation that in the gassing installation there is at least one hollow body that is an open socket piece that provides a gas jet and the gas jet emanates from a porous material. Breton et al. discloses such open socket pieces in Figure 6 where the gas jet emanates from outer layer 41 that is porous. It would have been obvious to one having ordinary skill in the art at the time the invention was made, in the Grigo et

al. filter device to have included open socket pieces to provide a gas jet that emanates from a porous layer, as taught by Breton et al., since Breton et al. states at Column 14, line 58-62 that such a modification, as is shown in Figure 6, would provide "superior sparging ability."

In summary, Grigo et al., in view of Masuda et al., in view of Breton et al., discloses or suggests all limitations recited in claims 10 and 12.

Claim 11. (Currently Amended) The filter device according to claim ~~4~~2, wherein in the upper zone of the apertures (5) semicircular spoilers are attached, in order to increase the effect of the flow of compressed air on the filter liquid.

Grigo et al., in view of Masuda et al., in view of Breton et al., discloses or suggests all claim 1 limitations. Claim 1 is further limited by the recited semicircular spoilers which close off the apertures and force more of the gas past the filter elements. In Figures 1 and 2, the Masuda et al. filter device show the upper half of the filter elements acting as the recited semicircular spoilers to force more of the gas past the filter elements. A combination of familiar prior art elements (a spoiler) according to known methods (used to redirect gas flow over the filter elements) is likely to be obvious when it does no more than yield predictable results (the filter elements are better cleaned).

In summary, Grigo et al., in view of Masuda et al., in view of Breton et al., discloses or suggests all claim 11 limitations.

Claim 14. (New) The filter device of claim 13, wherein the gassing installation comprises at least one elongated hollow body that is either porous or provided with holes and that is connected through a hollow shaft to a compressed gas generator.

Grigo et al., in view of Masuda et al., discloses or suggests all claim 13 limitations. Claim 14 recites two further limitations which were already discussed in claim 12 (porous pipe-shaped body) and claim 1 (compressed gas generator). As such, Grigo et al., in view of Masuda et al., in view of Breton et al., discloses or suggests all claim 14 limitations.

Response to Arguments

9. Applicant's arguments with respect to claims 1, 3-4, 7-12 and 14-15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Denise R. Anderson whose telephone number is (571)270-3166. The examiner can normally be reached on Monday through Thursday, from 8:00 am to 6:00 pm.

11. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter D. Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1797

12. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DRA

/Walter D. Griffin/
Supervisory Patent Examiner, Art Unit 1797